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India test fires scramjet demonstrator aircraft

India successfully launched the indigenously-developed Hypersonic Technology Demonstrator Vehicle in its maiden test from a base off the Odisha coast on Wednesday.

The HSTDV was successfully test-fired by the Defence Research and Development Organisation from Launch Complex-4 of the Integrated Test Range on Dr Abdul Kalam Island in Bay of Bengal at 11.27 am, DRDO sources said.

A defence ministry statement said the DRDO launched the technology demonstrator vehicle to prove a number of critical technologies for futuristic missions.

“The missile was successfully launched. Various radars, telemetry stations and electro-optical tracking sensors tracked the vehicle through its course. The data has been collected and will be analysed to validate the critical technologies,” it added.

The HSTDV is an unmanned scramjet demonstration aircraft for hypersonic speed flight, it can cruise at a speed of mach 6 and move up to an altitude of 32.5 km (20 miles) in 20 seconds, the sources said.

Besides its utility for long-range cruise missiles of the future, the dual-use technology will have multiple civilian applications also. It can be used for launching satellites at low cost too, they added.

Describing the maiden trial of the HSTDV as successful, a DRDO scientist said, “The new technology demonstrator vehicle was tested and the observations made by the radars and tracking sensors showed that it was a success.”

The trial was carried out in the presence of senior scientists and defence officials, including DRDO Chairman G Satheesh Reddy and ITR Director B K Das.

The HSTDV can move up to an altitude of 32.5 km in 20 seconds and once it is achieved successfully, India will enter a select club of countries that have such technology.

“The HSTDV project, through which we want to demonstrate the performance of a scramjet engine at a low altitude of 15 to 20 km, was on for a couple of years.

“Under this project, we are developing a hypersonic vehicle to be powered by a scramjet engine,” a DRDO scientist associated with the programme said.

The initial trial seeks to validate the aerodynamics of the air vehicle as well as its thermal properties and scramjet engine performance.

The HSTDV cruise vehicle is mounted on a solid rocket motor, which will take it to a required altitude, and once it attains certain mach numbers for speed, the cruise vehicle will be ejected out of the launch vehicle. Subsequently, the scramjet engine will be ignited automatically.

A battery of tracking system was positioned to track the event, the sources said.

https://stockdailydish.com/india-test-fires-scramjet-demonstrator-aircraft/

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Thu, 05 Dec 2019

Naval version of India's Tejas Fighter to conduct maiden flight from carrier

The naval variant of India's Tejas fighter jet is being readied for its first take off from an aircraft carrier

By Franz-Stefan Gady

The premier Defence Research and Development Organisation (DRDO) is set to develop a new twin-engine deck-based fighter aircraft for the Indian Navy to serve on its aircraft carriers, one of which is already in active service, and another is presently under construction, reports *The Hindu.*

The naval version of the Hindustan Aeronautics Limited (HAL) Tejas Light Combat Aircraft (LCA) is being readied for its first-ever take off from the Indian Navy's *Kiev*-class aircraft carrier INS *Vikramaditya*, according to Indian defense industry officials.

"It [the carrier-based take-off] is not too far. Extra safety is being taken and hence time is being consumed," a source within the Defense Research and Development Organization (DRDO) was quoted as saying on December 2 by *The Print*.

The source did not reveal the exact date, but cautioned that more tests will be necessary before the aircraft's launch from the Indian Navy's flattop. In 2o18, DRDO and Aeronautical Development Agency (ADA) sources were still confident that the Tejas would conduct its first take-off and landing in 2019.

The naval variant of the Tejas LCA hit another development milestone last month when it took off for the first time with two beyond visual range (BVR) and two close combat air-to-air missiles (CCM) from the Navy's Shore Based Test Facility (SBTF) located at a naval air station near Dabolim in Goa.

Notably, the Indian Navy has repeatedly ruled out the operational deployment of the naval version of the Tejas LCA as a result a number of technical shortcomings as well as excessive weight, which would prevent the fighter jet from carrying an adequate payload when operating from a carrier.

For now the naval variant of the Tejas is used as a technology demonstrator. DRDO and ADA are already working on a twin-engine medium-weight fighter jet for the Navy's expanding carrier force.

"The Navy has been clear from the very beginning that it needs a twin-engine aircraft and not single-engine because even if an engine fails, the aircraft should be able to land on the carrier," a Navy source told *The Print.*

"[T]he Indian Navy has expressed that, with newly-emerging requirements, only a medium weight category twin-engine aircraft will be inducted for operations," a DRDO source said.

"Currently, the configuration design of a twin-engine naval aircraft as sought by the user has been initiated. The initial flight-testing of this aircraft is scheduled to be carried out by 2026."

The Tejas requires a short take-off but arrested recovery (STOBAR) configured carrier.

INS *Vikramaditya* and INS *Vikrant*, India's first indigenously built flattop, are both fitted with STOBAR systems for launching aircraft from a ski-jump, whereas the second carrier of the new *Vikrant*-class, the INS *Vishal*, will likely use a catapult assisted take-off but arrested recovery (CATOBAR) aircraft launch system, possibly incorporating the new electromagnetic aircraft launch system (EMALS) technology.

“About 50 ski jump take-offs have been carried out [by the Tejas LCA] so far with various possible combinations that are likely to be done by this aircraft on-board a carrier,” according to a DRDO source.

“Several combinations of aircraft recovery with Arresting Gear System (AGS) at SBTF have been successfully carried out by arresting the aircraft and bringing it to a halt within 90 metres,” another DRDO source said. “To date, 28 arrested landings have been successfully achieved without ever missing the arresting wire.”

https://thediplomat.com/2019/12/naval-version-of-indias-tejas-fighter-to-conduct-maiden-flight-from-carrier/

#SWARAJYA

Thu, 05 Dec 2019

After gaining LCA Tejas’ experience DRDO to build new deck-based fighter jet for Indian Navy

The premier Defence Research and Development Organisation (DRDO) is set to develop a new twin-engine deck-based fighter aircraft for the Indian Navy to serve on its aircraft carriers, one of which is already in active service, and another is presently under construction, reports *The Hindu.*

The development was made public by the Chief of Naval Staff, Admiral Karambir Singh who said that the new fighter jet platform would be ready for deployment by 2026 and will be based on the experience gained by the DRDO with the Naval Light Combat Aircraft (LCA) Tejas.

Admiral Singh also shared that he expected the country's first Indigenously-built Aircraft Carrier (IAC-1) Vikrant to be operational by 2022, which would provide a big boost to the nation's capabilities as a major maritime and naval power in the region.

Admiral Singh further added that the IAC-1 Vikrant has reached an advanced stage of construction in Kochi with all ship-building issues having been overcome. He said that the delivery of the carrier is certain by February-March 2021 post which trails would commence. "We should have a fully operational carrier by 2022," he said.

https://swarajyamag.com/insta/after-gaining-lca-tejas-experience-drdo-to-build-new-deck-based-fighter-jet-for-indian-navy

FlightGlobal

Thu, 05 Dec 2019

India funds P-8I top-up buy and AWACS acquisition

The purchase of additional Boeing P-8I maritime patrol aircraft for the Indian navy has received government approval – but only six aircraft are now planned to be acquired, instead of the 10 originally planned

By Mike Rajkumar

Bangalore: New Delhi has also revived its moribund Airborne Warning and Control System India (AWACS India) programme, which seeks to deliver an indigenous replacement for the Ilyushin Il-76-based A-50Is now in use.

A fleet of eight P-8Is are currently operational with the navy. These were acquired under a $2.14 billion Foreign Military Sales (FMS) contract signed in January 2009. Options for four more were taken in July 2016, in a deal worth approximately $1 billion, with deliveries due between July 2020 and December 2021.

In a report placed before parliament in August 2018, the Indian national audit agency said: "The critical role equipment offered by Boeing were not fully meeting the needs of the Indian navy. Owing to capability limitations of radars installed, the aircraft is not able to achieve the envisaged coverage area requirements."

The report also stated that the P-8I's anti-submarine warfare capability could only be partially fulfilled, as a contract for required weapons had not been concluded as of September 2017.

India's navy also currently operates upgraded Il-38SD maritime surveillance aircraft, which were first inducted in 1977. The five-strong fleet is slated for retirement from 2025.

Meanwhile, the revived AWACS India programme will use indigenously designed and developed mission systems, and subsystems provided and integrated by the nation's Defence Research and Development Organisation (DRDO).

The AWACS India programme got under way in February 2013 with approval from the Cabinet Committee on Security. This was followed by a March 2014 tender for procurement of six aircraft – an initial batch of two, plus options for four more.

Starting with the Aero India air show in 2015 and at successive events in 2017 and 2019, a scale model of an Airbus A330 with a rotodome was displayed by the DRDO, indicating its preference for the European airframer.

The AWACS India effort has its roots in the DRDO-led Airborne Early Warning and Control (AEW&C) system programme, which was conceived in 2002. Government approval was given in 2004 at a project cost of approximately $350 million, with project completion targeted for 2011.

However, the first 'Netra' AEW&C platform – based on Embraer's EMB-145 – was only delivered to the air force in an initial operational clearance configuration in February 2017, followed by a second in September 2019. Due to "non-achievement of certain operational requirements specified by IAF [the Indian air force], there was time overrun of 70%", an audit agency report stated last year, adding that the "selection of Embraer as [its] platform created design constraints and caused delay".

Separately, New Delhi has also approved the procurement of a new twin engine heavy helicopter fleet for the Indian Coast Guard.

https://www.flightglobal.com/news/articles/india-funds-p-8i-top-up-buy-and-awacs-acquisition-462684/